DOCKET NO: 270161US0PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:	
SHIGERU SUZUKI, ET AL.	:	EXAMINER: O'HERN, B. T.
SERIAL NO: 10/530,480	:	
FILED: OCTOBER 6, 2005	:	GROUP ART UNIT: 1772
FOR: HEAT-SHRINKABLE FILM	:	

APPEAL BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

This is an appeal of the Rejection dated September 4, 2007 of at least twice-rejected Claims 1-23, 28 and 29. A Notice of Appeal was timely filed on December 4, 2007.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Denki Kagaku Kabushiki Kaisha having an address at 4-1, Yuraku-cho 1-chome, Chiyoda-ku, Tokyo 100-8455, Japan.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative and the assignee are aware of no appeals, interferences, or judicial proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

Claims 1-23, 28 and 29 stand rejected and are herein appealed. Claims 24-27 stand withdrawn from consideration.

IV. STATUS OF THE AMENDMENTS

No amendment under 37 CFR 1.116 has been filed.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

A summary of the claimed subject matter, as claimed in independent (and original) Claim 1, is mapped out below, with reference to page and line numbers in the specification added in **[bold]** after each element.

Claim 1 is drawn to a heat shrinkable film comprising a resin composition **[page 5, lines 4-5]** comprising the following components (A), (B) and (C), obtained by orientation at least in monoaxial direction, and having a heat shrinkage ratio at 80°C for 10 seconds of at least 20%: **[page 5, lines 5-9]**

(A) 50 to 95 mass% of a block copolymer comprising an aromatic vinyl compound and a conjugated diene in a proportion of the aromatic vinyl compound of from 50 to 90

mass%, and having a micro phase separation structure comprising a soft phase and a hard phase, **[page 5, lines 10-14]**

(B) 5 to 50 mass% of a styrene type polymer having a syndyotactic structure, **[page 5, lines 15-16]** and

(C) 0 to 45 mass% of a styrene type polymer different from the components (A) and (B). **[page 5, lines 17-18]**

VI. GROUNDS OF REJECTION

Ground (A)

Claims 1-20, 22-23 and 28-29 stand rejected under 35 U.S.C. § 103(a) as unpatentable over US 6,841,261 (Matsui et al) in view of US 6,074,715 (Lind et al) "with evidence of" US 4,386,125 (Shiraki et al).

Ground (B)

Claim 21 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Matsui et al in view of Lind et al with evidence of Shiraki et al and US 6,184,289 (Teranishi et al).

VII. ARGUMENT

Ground (A)

Claims 1-20, 22-23 and 28-29 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Matsui et al in view of Lind et al and Shiraki et al. That rejection is untenable and should not be sustained.

As recited in Claim 1, an embodiment of the present invention is a heat shrinkable film comprising a resin composition comprising the following components (A), (B) and (C), obtained by orientation at least in monoaxial direction, and having a heat shrinkage ratio at 80°C for 10 seconds of at least 20%: (A) 50 to 95 mass% of a block copolymer comprising an aromatic vinyl compound and a conjugated diene in a proportion of the aromatic vinyl compound of from 50 to 90 mass%, and having a micro phase separation structure comprising a soft phase and a hard phase, (B) 5 to 50 mass% of a styrene type polymer having a syndyotactic structure, and (C) 0 to 45 mass% of a styrene type polymer different from the components (A) and (B).

The specification herein, beginning at page 44, line 23, contains comparative data demonstrating the superiority of the presently-recited resin composition compared to other compositions containing some but not all of the presently-recited components, or the recited components but in different proportions. Reference Examples 1-8 were prepared, each of which is of a block copolymer comprising an aromatic vinyl compound and a conjugated diene. Reference Example 1 contains no micro phase separation structure, Reference Examples 2-8 do (page 45, lines 5-13). Examples 1-25 are according to the present invention; Comparative Examples 1-9 are for purposes of comparison (page 61, lines 5-7). The Examples and Comparative Examples were prepared and tested for various properties as described (page 53, line 16 to page 61, line 4). The properties of the Reference Examples are shown in Table 1 (page 65), and the compositions and data for the Examples and Comparative Examples are shown in Tables 2-7 (pages 66-77). As shown in Table 5, Comparative Examples 1-3 contain no components (B) or (C); Comparative Examples 4 and

5 contain no component (B); and Comparative Example 7 contains components (A) and (B) but in proportions outside the terms of the present claims.

As the data show, the present invention results in a heat shrinkable film of which the heat resistance is remarkably improved without impairing conventional heat shrinkability, spontaneous shrinkability and transparency (page 64, lines 2-9).

The applied prior art neither discloses nor suggests the presently-claimed invention, or the superior results obtained thereby, as now discussed.

Matsui et al discloses a composition containing at least two types of different block copolymers (A), wherein the block copolymer (A) comprises a vinyl aromatic hydrocarbon and a conjugated diene, and having particular dynamic viscoelasticity and loss tangent value properties (column 3, line 16ff), or a composition comprising the block copolymer (A) and a vinyl aromatic hydrocarbon polymer that is at least one member selected from vinyl aromatic hydrocarbon polymers (B1) to (B3), wherein (B1) is a vinyl aromatic hydrocarbon polymer, (B2) is a block copolymer of a vinyl aromatic hydrocarbon and a conjugated diene (excluding the block copolymer (A)), and (B3) is a rubber-modified transparent resin which is a composition of a copolymer (a) comprising a vinyl aromatic hydrocarbon and a (meth)acrylate having a particular refractive index, and a rubber-like elastic body (b) having a particular refractive index, wherein the copolymer (a) forms a continuous phase and the rubber-like elastic body (b) forms a disperse phase, and the weight ratio of (a)/(b) is within a particular range (column 5, line 23ff). The compositions are disclosed as useful for the production of a heat shrinkable film (column 1, lines 6-23).

The Examiner finds that Matsui et al discloses, in effect, presently-recited component (A), relying on the disclosure in Matsui et al at column 8, line 64 to column 10, line 51.

In reply, neither the above-referenced disclosure in Matsui et al at column 8 to column 10, nor any other disclosure in Matsui et al, discloses or suggests that **any** block copolymer comprising an aromatic vinyl compound and a conjugated diene disclosed therein have a micro phase separation structure comprising a soft phase and a hard phase. Indeed, as noted above with regard to the Reference Examples, such a structure is not inherent in vinyl aromatic hydrocarbon- conjugated diene block copolymers.

Nor does Matsui et al disclose or suggest the presence of a styrene type polymer having a syndiotactic[1] structure. While the Examiner cites column 14, line 32 to column 15, line 16, and column 9, lines 28-63, of Matsui et al, neither these passages, nor any other disclosure in Matsui et al, even mentions styrene type polymers that are syndiotactic.

The Examiner relies on Lind et al for its disclosure of syndiotactic polystyrene. Lind et al discloses heat shrinkable multilayer and single layer films having various uses, where at least one layer contains a polymer or copolymer formed by a polymerization reaction in the presence of a single site catalyst such as a metallocene (column 2, lines 50-54). Lind et al discloses further that metallocene single site catalysts are capable of producing isotactic polymers and syndiotactic polymers, i.e., polymers in which the crystalline branches alternate regularly on both sides of the back bone of the polymer (column 4, lines 10-13). Among the many embodiments exemplified in Lind et al is a three layer coextruded structure of Fig. 1 in which the middle layer may be a crystalline syndiotactic polystyrene (paragraph bridging columns 5 and 6). The Examiner finds that Lind et al discloses a multilayer heat shrinkable film containing a syndiotactic polystyrene "for the purpose of providing a styrene-type structure having a strong structure and narrow molecular weight distribution which provides

[1] The terms "syndiotactic" and "syndyotactic" have been used synonymously herein.

for narrow crystalline and melting point ranges." The Examiner then holds that it would have been obvious to substitute, in effect, the syndiotactic polystyrene of Lind et al, presumably as a styrene polymer in Matsui et al, "in order to provide a strong heat shrinkable multilayered structure".

In reply, Lind et al does not disclose any particular advantage of syndiotactic polystyrene over any other polystyrene, but rather discloses the types of polymer structures obtainable using metallocene single site catalysts generally, and the ability to control comonomer placement and side chain length and branching, such as the above-discussed syndiotactic and isotactic structures (paragraph bridging columns 3 and 4).

The Board can take official notice of the difference between a syndiotactic polystyrene (SPS), in which the direction of the pendant phenyl moiety alternates in a regular manner, as discussed above, and garden-variety polystyrene, also known as atactic polystyrene (APS), in which the pendant phenyl moieties are arranged randomly.[2] The Board can also take official notice of the fact that SPS is crystalline while APS is non-crystalline. Applicants' point is that such polystyrenes of different structure are not considered to be interchangeable by persons of ordinary skill in the art.

Without the present disclosure as a guide, there would have been no reason to use a syndiotactic polystyrene as any of the possible vinyl aromatic hydrocarbon polymers within the various embodiments disclosed by Matsui et al. Moreover, even if a syndiotactic polystyrene were used in Matsui et al, the result would still not be the presently-claimed invention.

[2] See "Polystyrene" at http://pslc.ws/macrog/kidsmac/polysty.htm. A copy is **attached herewith**.

Claim 9

Claim 9 is separately patentable. Since the combination of the applied prior art neither discloses nor suggests the presence of a styrene type polymer having a syndiotactic structure *per se*, the prior art necessarily neither discloses nor suggests such a compound having a crystalline melting point within a range of 160° to 260°C, and a crystalline melting energy of at least one J/g. While the Examiner holds that such would have been obvious through routine optimization, it is simply a conclusion not based on any fact-finding.

Claim 10

Claim 10 is separately patentable. Since the combination of the applied prior art neither discloses nor suggests the presence of a styrene type polymer having a syndiotactic structure *per se*, the prior art necessarily neither discloses nor suggests a heat shrinkable film which has a crystallinity of from 3 to 80% and a cold crystallization temperature of from 120 to 170°C derived from the component (B), i.e., a styrene type polymer having a syndiotactic structure. While the Examiner holds that such would have been obvious through routine optimization, it is simply a conclusion not based on any fact-finding.

Claim 11

Claim 11 is separately patentable. The applied prior art discloses and suggests nothing about internal haze of a heat shrinkable film. It follows that the applied prior art discloses and suggests nothing about an internal haze of at most 30%. While the Examiner holds that such would have been obvious through routine optimization, it is simply a conclusion not based on any fact-finding.

Claim 12

Claim 12 is separately patentable. The applied prior art discloses and suggests nothing about relaxation stresses of a heat shrinkable film. It follows that the applied prior art discloses and suggests nothing about a ratio of the relaxation stresses in the orientation direction of the film and in a direction at right angles therewith, of from 1.2 to 10. While the Examiner holds that such would have been obvious through routine optimization, it is simply a conclusion not based on any fact-finding.

Claim 13

Claim 13 is separately patentable. The Examiner dismisses the limitation --that no holes of 1 mm or larger are confirmed after the film is left at rest on a hot plate of 120°C for 120 seconds so that the film and the hot plate are in contact with each other-- as a process limitation and thus not entitled to any weight.

In reply, this limitation is a property of the heat shrinkable film, not a process limitation. There is no reason to believe that any of the heat shrinkable films of the applied prior art meet this limitation.

Claim 14

Claim 14 is separately patentable. Since the combination of the applied prior art neither discloses nor suggests the presence of a styrene type polymer having a syndiotactic structure *per se*, the prior art necessarily neither discloses nor suggests such a polymer forming a domain in the resin composition. The Examiner has made no fact finding as to this claim.

Claim 15

Claim 15 is separately patentable. The Examiner finds that while Matsui et al does not disclose presently-recited component (D), Matsui et al discloses a (meth)acrylate in a block copolymer for various benefits. The Examiner holds that it would have been obvious to use Matsui et al's "similar" (meth)acrylate.

In reply, it appears that the Examiner means that presently-recited component (D) is "similar" to Matsui et al's (meth)acrylate, and thus, component (D) would have been obvious. The Examiner is relying on vinyl aromatic hydrocarbon (B3) of Matsui et al. However, neither vinyl aromatic hydrocarbon (B3), nor any other part of Matsui et al, discloses or suggest the (meth)acrylate of presently-recited component (D).

For all the above reasons, it is respectfully requested that this rejection be REVERSED.

Ground (B)

Claim 21 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Matsui et al in view of Lind et al, Shiraki et al and Teranishi et al. That rejection is untenable and should not be sustained.

The disclosures and deficiencies in the combination of Matsui et al, Lind et al, and Shiraki et al have been discussed above. Teranishi et al does not remedy these deficiencies.

The Examiner relies on Teranishi et al for its disclosure of a rubber-modified polystyrene, wherein a particulate rubber polymer is dispersed in a matrix. Without the present disclosure as a guide, it is not clear why one skilled in the art would combine

Teranishi et al with Matsui et al, Lind et al, and Shiraki et al. However, even if combined, the result would still not be the presently-claimed invention, because Teranishi et al does not remedy the above-discussed deficiencies in the combination of Matsui et al, Lind et al, and Shiraki et al.

For all the above reasons, it is respectfully requested that this rejection be REVERSED.

VIII. CONCLUSION

For the above reasons, it is respectfully requested that all the rejections still pending be REVERSED.

Respectfully submitted,

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CLAIMS APPENDIX

Claim 1: A heat shrinkable film comprising a resin composition comprising the following components (A), (B) and (C), obtained by orientation at least in monoaxial direction, and having a heat shrinkage ratio at 80°C for 10 seconds of at least 20%:

(A) 50 to 95 mass% of a block copolymer comprising an aromatic vinyl compound and a conjugated diene in a proportion of the aromatic vinyl compound of from 50 to 90 mass%, and having a micro phase separation structure comprising a soft phase and a hard phase,

(B) 5 to 50 mass% of a styrene type polymer having a syndyotactic structure, and

(C) 0 to 45 mass% of a styrene type polymer different from the components (A) and (B).

Claim 2: The heat shrinkable film according to Claim 1, wherein the block copolymer as the component (A) has a random copolymer block portion of the aromatic vinyl compound and the conjugated diene in its structure.

Claim 3: The heat shrinkable film according to Claim 1, wherein the component (A) has the following characteristics:

(1) the loss tangent ($\tan\delta$) has one or more maximum values within a temperature range of at least 65°C and less than 100°C in the dynamic viscoelasticity spectrum,

(2) the highest value of the maximum values corresponding to (1) is within a range of at least 1.5 and less than 4.0,

(3) the loss tangent at a temperature lower by 10°C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 40% of the highest maximum value,

(4) the loss tangent at a temperature lower by 30°C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 10% of the highest maximum value, and

(5) the loss tangent at 30°C is within a range of at least 0.01 and less than 0.4.

Claim 4: The heat shrinkable film according to Claim 1, wherein the resin composition constituting the heat shrinkable film has the following characteristics:

(1) the loss tangent (tanδ) has one or more maximum values within a temperature range of at least 65°C and less than 100°C in the dynamic viscoelasticity spectrum,

(2) the highest value of the maximum values corresponding to (1) is within a range of at least 1.5 and less than 4.0,

(3) the loss tangent at a temperature lower by 10°C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 40% of the highest maximum value,

(4) the loss tangent at a temperature lower by 30°C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 10% of the highest maximum value, and

(5) the loss tangent at 30°C is within a range of at least 0.01 and less than 0.4.

Claim 5: The heat shrinkable film according to Claim 1, which has a spontaneous shrinkage ratio at 40°C for 7 days of at most 5%.

Claim 6: The heat shrinkable film according to Claim 1, wherein component (C) is present and comprises a styrene type polymer having a random copolymer block portion of an aromatic vinyl compound and a conjugated diene in its structure.

Claim 7: The heat shrinkable film according to Claim 1, wherein component (C) is present and comprises a rubber-modified polystyrene containing dispersed rubber particles having a volume average particle size of at most 2 μm.

Claim 8: The heat shrinkable film according to Claim 1, wherein component (C) is present and comprises a styrene type polymer having a random copolymer structure of styrene and a meth(acrylate) in its structure.

Claim 9: The heat shrinkable film according to Claim 1, wherein the styrene type polymer having a syndyotactic structure as the component (B) has a crystalline melting point within a range of from 160°C to 260°C, and a crystalline melting energy of at least 1 J/g.

Claim 10: The heat shrinkable film according to Claim 1, which has a crystallinity of from 3 to 80% and a cold crystallization temperature of from 120 to 170°C derived from the component (B).

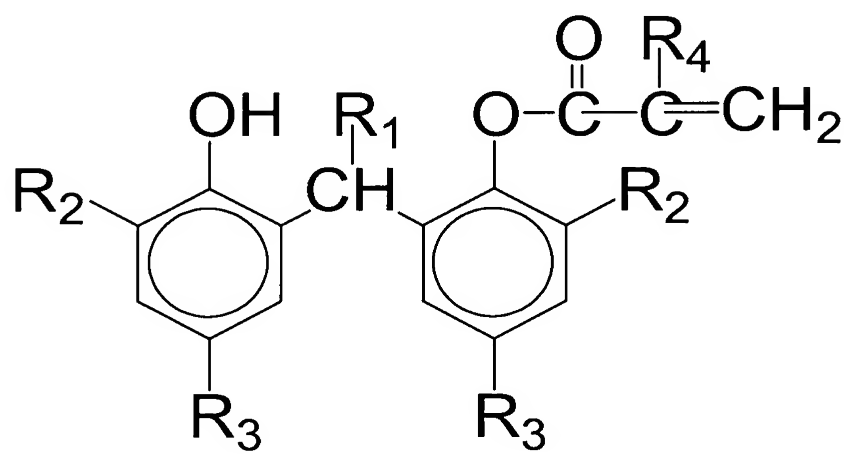
Claim 11: The heat shrinkable film according to Claim 1, which has an internal haze of at most 30%.

Claim 12: The heat shrinkable film according to Claim 1, wherein the ratio of the relaxation stresses in the orientation direction of the film and in a direction at right angles therewith, is from 1.2 to 10.

Claim 13: The heat shrinkable film according to Claim 1, wherein no holes of 1 mm or larger are confirmed after the film is left at rest on a hot plate of 120°C for 120 seconds so that the film and the hot plate are in contact with each other.

Claim 14: The heat shrinkable film according to Claim 1, wherein the styrene type polymer having a syndyotactic structure as the component (B) forms a domain in the resin composition.

Claim 15: The heat shrinkable film according to Claim 1, which contains an acrylate type compound (D) represented by the following formula in an amount of from 0.1 to 3 parts by mass per 100 parts by mass of the total amount of the components (A), (B) and (C):



wherein R_1 represents hydrogen or a C_{1-3} alkyl, each of R_2 and R_3 which are independent of each other, represents a C_{1-9} alkyl, and R_4 represents hydrogen or methyl.

Claim 16: The heat shrinkable film according to Claim 1, which contains a phosphorus type stabilizer in an amount of from 0.1 to 1 part by mass per 100 parts by mass of the total amount of the components (A), (B) and (C).

Claim 17: The heat shrinkable film according to Claim 1, which contains a phenol type stabilizer (except the component (D)) in an amount of from 0.1 to 1 part by mass per 100 parts by mass of the total amount of the components (A), (B) and (C).

Claim 18: The heat shrinkable film according to Claim 1, which is an expanded product.

Claim 19: A heat shrinkable film having a multilayer structure, which has at least one layer of the heat shrinkable film as defined in Claim 1.

Claim 20: The heat shrinkable film having a multilayer structure according to Claim 19, wherein at least one of the outermost layers is made of a resin composition containing at least one copolymer selected from a styrene/butadiene block copolymer, a styrene/isoprene block copolymer and a styrene/meth(acrylate) type copolymer.

Claim 21: The heat shrinkable film having a multilayer structure according to Claim 19, wherein at least one of the outermost layers contains a rubber-modified polystyrene containing dispersed rubber particles having a volume average particle size of at most 2 μm, in an amount of from 0.1 to 10 mass%.

Claim 22: A heat shrinkable film having a multilayer structure which consists of three layers, the inner layer is the heat shrinkable film as defined in Claim 1, and the proportion of the thickness of the three layers is 1 to 30:98 to 40:1 to 30 (the total is 100).

Claim 23: A heat shrinkable film having a multilayer structure which consists of two layers, one layer is the heat shrinkable film as defined in Claim 1, and the proportion of the thickness of the two layers is 5 to 95:95 to 5 (the total is 100).

Claim 28: A packaging label comprising the heat shrinkable film as defined in Claim 1.

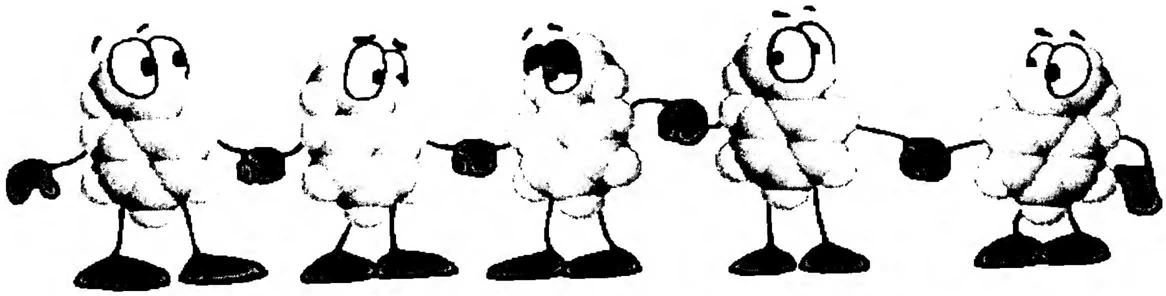
Claim 29: A container packaged with the heat shrinkable film as defined in Claim 1.

EVIDENCE APPENDIX

Comparative data in the specification beginning at page 44, line 23.

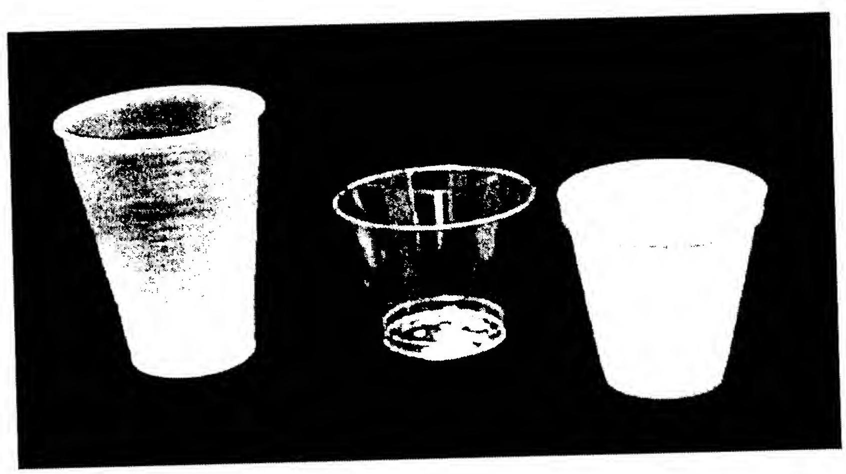
"Polystyrene" at http://pslc.ws/macrog/kidsmac/polysty.htm, **attached herewith**.

Polystyrene



Polystyrene is one of those polymers that's all over the place. Polystyrene is an inexpensive and hard plastic, and probab only polyethylene is more common in your everyday life. The outside housing of the computer you're using now is probably made of polystyrene, as well as the housings of things like hairdryers, TVs and kitchen appliances. Model cars and airplanes are made from polystyrene, as well as many other toys. There's also foam packaging and insulation, and a lot of the molded parts on the inside of your car, like the radio knobs.

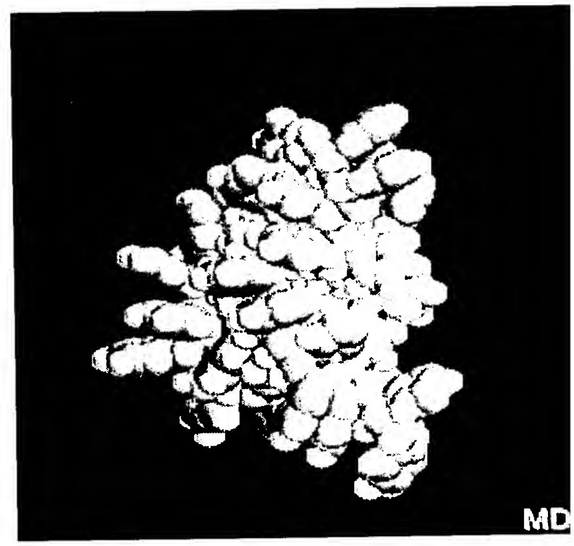
Polystyrene is also used to make drinking cups - the hard plastic ones and also the soft foamy ones. A popular brand of polystyrene foam is called Styrofoam™.

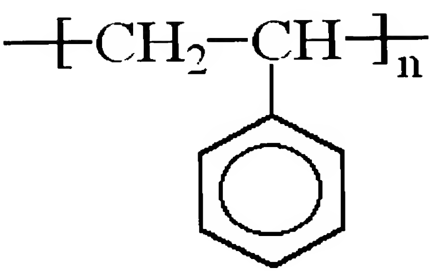


Would you believ all three of these cups are made from polystyrene'

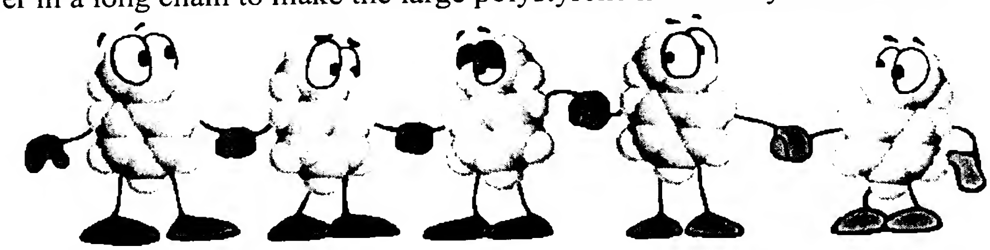
Here's a molecule of polystyrene. You can see it in this 3-D model on the right or in the diagram below. Click the 3-D picture to see an interactive version.

The difference between polystyrene and polyethylene is that each repeat unit in styrene has a big pendant group instead of one of the H's

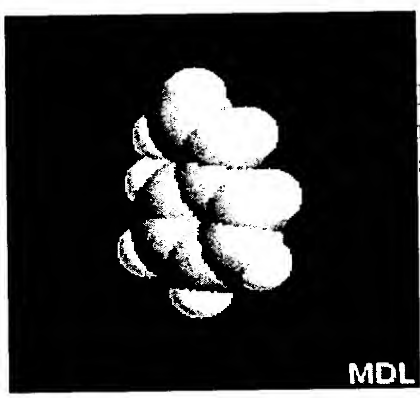




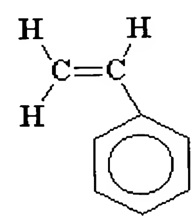
In this diagram the little "n" means that this group of molecules is repeated over ar over in a long chain to make the large polystyrene molecule you see below.



What, you guys again?!



Polystyrene chains are made from many styrene molecules. (So, the monomer is styrene.) Here you can see a model and a diagram of the styrene monomer. Go ahead, play with it!



Polystyrene's Personalities

Most polystyrene you find will be the ordinary stuff used in CD cases and plastic forks, but there are also newer kinds which are stronger and can be used for special jobs.

Polystyrene that's the same, but different....

There's a new kind of polystyrene out there, called *syndiotactic* polystyrene. Now, to understand how this is different fro plain old polystyrene, we have to picture the polymer chain all stretched out, like this:

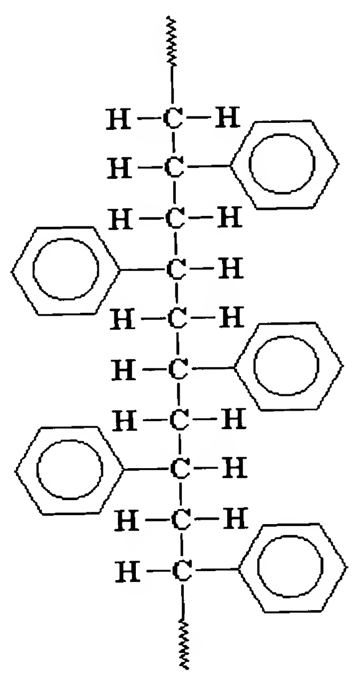
line model of polystyrene all stretched out, showing the benzene rings and H's off of the carbon chain. show carbons too.

This doesn't show the whole picture, though. When we look at it in 3D, that big blobby pendant group can be sticking ou toward you (like it's in front of the computer screen), or on the other side (like it's behind the screen), kind of like this:

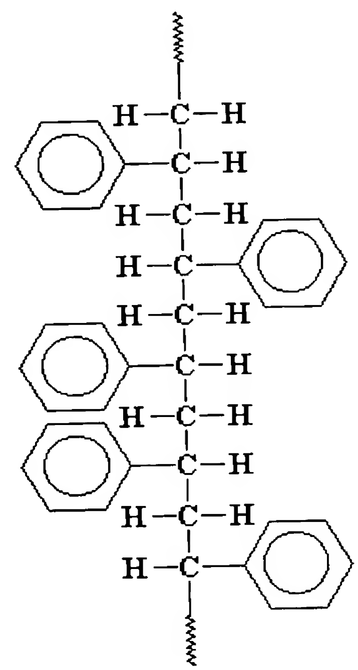
Ball-and-stick model of polystyrene all stretched out, showing the benzene rings and H's off of the carbon chain. Show some benzenes forward, some bacl

In plain (or *atactic*) polystyrene, there's no regular order to which side of the chain those pendant groups are on, just like the structure shown above.

In *syndiotactic* polystyrene, every other pendant group is sticking out at you, and the other ones are towards the back, away from you. (By the way, syndiotactic sounds like: sinn-dee-oh-tack'-tick.)

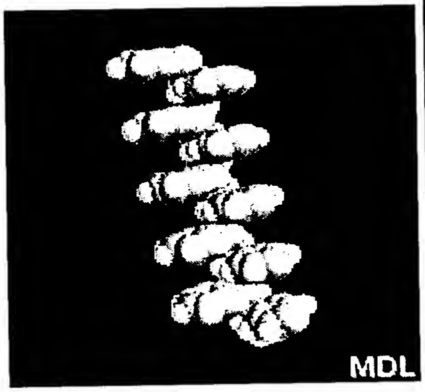


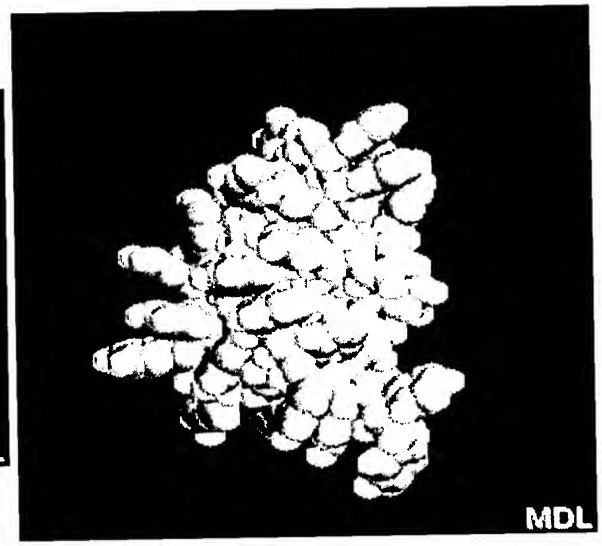
The newer syndiotactic polystyrene has a regular pattern



Regular atactic polystyrene has a random pattern.

Here you can see the new syndiotactic polystyrene alongside the old atactic polystyrene.

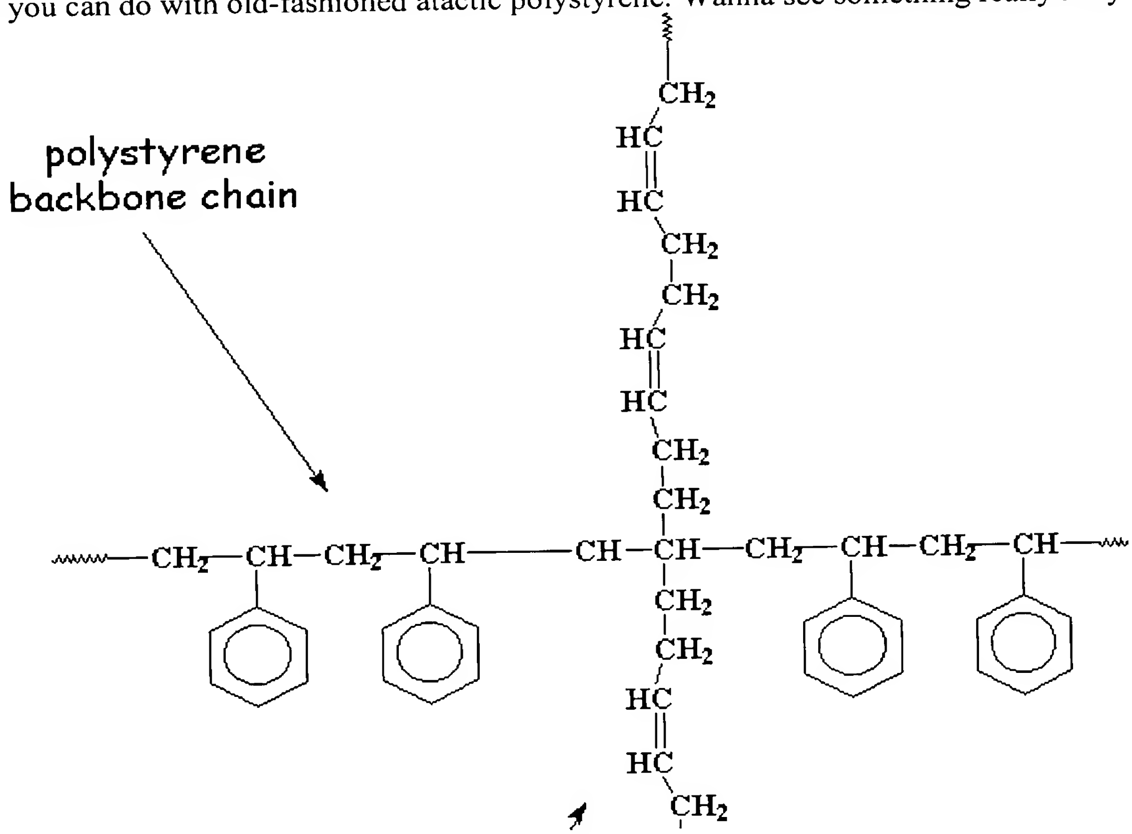




Notice how straight and regular the syndiotactic molecule is, compared to how bunchy and "disorganized" the normal polystyrene looks. The new syndiotactic polystyrene is crystalline (that's just another way of saying "it's all ordered and organized"), which makes it stronger and more resistant to heat and chemicals. It costs more to make, so it's not used to make cups and plastic knives. Scientists feel like it would be useful to make medical equipment, because its tough crystalline structure makes it able to resist the moisture, heat and cleaners used to sterilize it.

Go Ahead, Hit It Hard!

But there are still some fun things you can do with old-fashioned atactic polystyrene. Wanna see something really nifty'



What would happen if we were to take some styrene monomer, and we put some polybutadiene rubber in the mix? Take a look at polybutadiene, and you'll see that it has double bonds in it that can polymerize. We end up with the polybutadiene forming a graft copolymer with the styrene monomer. A graft copolymer has one kind of polymer for the backbone chain, with chains growing out of it that are made from a different kind of polymer. In this case, it's a polystyrene chain with polybutadiene chains growing out of it.

These rubbery chains

hanging off of the backbone chain do some good things for polystyrene. They act to absorb energy when the polymer ge hit with something. This makes it stronger, not as brittle, and capable of taking harder impacts without breaking than regular polystyrene. This material is called *high-impact polystyrene*, or HIPS for short.

Another thing that happens when polystyrene and polybutadiene get mixed is that there are still some separate chains of each polymer that form what's called a *polymer blend*. But it's the polystyrene chains with the rubber attached that give HIPS its good qualities.

SBS

Polystyrene is also part of a type of hard rubber called poly(styrene-butadiene-styrene), or SBS rubber. SBS rubber is a thermoplastic elastomer. That means it acts like plastic and rubber at the same time.

This stuff is good for things that are made in molds (like plastics), but stil need to be rubbery. A good example is the bottoms of running shoes. Mo of these are SBS rubber.

Other polymers used as plastics include:

Polyethylene
Polypropylene
Polyesters
Polycarbonate
PVC
Nylon
Poly(methyl methacrylate)

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RELATED PROCEEDINGS APPENDIX

None.